THE EFFECTIVENESS OF MOTHERS' DISCIPLINARY REASONING IN RESPONSE TO TODDLER NONCOMPLIANCE

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Submitted to the Faculty of the
Graduate College of the
Oklahoma State University
in partial fulfillment of
the requirements for
the Degree of
DOCTOR OF PHILOSOPHY
December, 2014

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ACKNOWLEDGEMENTS

Glory to God whose grace has sustained me.

My deepest thanks and admiration belong to Carolyn Henry and Bob Larzelere, my co-advisers. You have patiently walked me through each step of this degree. Thank you for challenging, nurturing, mentoring, and respecting me. Also, I want to express my thanks to committee members Laura Hubbs-Tait and Shiretta Ownbey. I could not have asked for a better team.

Thank you to my precious husband Ben for all the extra meals, laundry, sick days, and countless other duties you provided for our family. Thank you for committing to this journey with me.

Thank you to my children who inspire my research in parenting and keep me laughing.

Finally, I want to express thanks to my parents who have always believed I would earn this degree. Your confidence in me was contagious when I needed it. Thank you for the countless hours you have spent with my children while I studied and wrote and for your constant prayers.

I also thank those who provided funding for The Moms & Tots project, which included Oklahoma State University and individual donors through The Counsellor Foundation and the Narramore Christian Foundation.

Name: SADA J. KNOWLES

Date of Degree: DECEMBER, 2014

Title of Study: THE EFFECTIVENESS OF MOTHERS' DISCIPLINARY REASONING IN RESPONSE TO TODDLER NONCOMPLIANCE

Major Field: HUMAN SCIENCES

Abstract: The current study examined the effectiveness of disciplinary reasoning in de-escalating the intensity of noncompliance in discipline episodes with toddlers. Using Bell's control model, the effectiveness of reasoning was hypothesized to vary by characteristics unique to the toddler (e.g., age, temperament, gender), mother (i.e., "thinking" parent, responsiveness, willingness to use punishment, demographic factors), and situation (i.e., preceding type of noncompliance, length of discipline episode). The sample consisted of 102 mother-toddler pairs recruited through convenience sampling techniques. The mothers were primarily married (79%), Caucasian (80%), and well-educated (60% with bachelor's degree or higher). Toddlers (62% male) ranged in age from 17.2 to 30.8 months (M = 23.8, SD = 3.9). Data were collected through a combination of questionnaires and interviews. Multilevel modeling was used to examine the effectiveness of reasoning in immediately de-escalating noncompliance intensity during discipline episodes. There was a significant main effect for reasoning (π = -.33, p < .001), indicating that reasoning was likely to predict an immediate decrease in noncompliance intensity. Additionally, reasoning interacted with toddler surgency (γ = -.17, p = .05) and mother involvement (γ = .22, p = .02) and marginally interacted with the severity of the mother's last-resort discipline tactic (γ = .15, p = .06). More specifically, toddler surgency predicted increased effectiveness of reasoning in reducing the intensity of noncompliance. However, mother involvement and severity of the last-resort tactic predicted a decrease in the effectiveness of reasoning in reducing noncompliance intensity. Post-hoc analyses separated the effect of the two components of reasoning (i.e., explaining, offering alternatives). Offering alternatives almost entirely accounted for the effectiveness of reasoning. It predicted a reduction in the intensity of noncompliance regardless of the preceding type of noncompliance or any toddler or mother characteristics. In contrast, explaining interacted with the preceding type of noncompliance in predicting de-escalation of noncompliance intensity. Explaining was more effective in decreasing noncompliance intensity with skilled types of noncompliance (e.g., whining, negotiating) than unskilled types of noncompliance (e.g., tantrums, defiance). Implications for parents and practitioners are that (a) reasoning can be an effective tactic for de-escalating noncompliance with very young children, (b) explaining expectations is unlikely to have the desired immediate effect when toddlers are throwing tantrums or being defiant, and (c) offering alternatives de-escalates noncompliance in the short-term by offering mutually satisfactory solutions in disciplinary situations. The distinction between offering alternatives and explaining offers support for Bell's control theory demonstrating mothers and toddlers likely make fine-tuned adjustments to each other's behaviors based on evaluations of one another and the current situation.

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MANUSCRIPT

Parental control is a critical dimension of effective parenting characterized by the ability of parents to create and enforce behavioral standards reflecting parental perceptions of social norms, age-related expectations, and tolerable conduct (Barber & Xia, 2013; Baumrind, Larzelere, & Owens, 2010). Toddlerhood is a critical time for examining parental disciplinary practices as toddlers develop the physical and cognitive capacities to exert independence, creating new challenges for parents (Holden, 2010). Many parents, for example, perceive increases in child behavior problems up to around 36 months of age (Larzelere, Amberson, & Martin, 1992). Yet, existing scholarship lacks clear guidance regarding the most effective disciplinary responses to inappropriate expressions of those new capabilities (Barber & Xia, 2013), which are often interpreted as noncompliance (i.e., the child's unwillingness to follow parental requests or commands; Kuczynski & Kochanska, 1990). On one hand, child development researchers (e.g., Grolnick, 2012; Grolnick & Pomerantz, 2009; Straus & Fauchier, 2007) encourage parents to maximize disciplinary reasoning, while minimizing power assertion, which is the "use of superior power to control the child's behavior (including techniques such as

forceful commands, physical restraint, spanking, and withdrawal of privileges)" (Shaffer & Kipp, 2007, p. 585).

On the other hand, parental interventions based on behavioral management typically train parents to minimize their use of disciplinary reasoning, at least when parents are responding to misbehavior. Instead, they train parents to respond to noncompliance with a consistent sequence of increasingly forceful power assertive tactics until children learn to cooperate with the initial milder steps in that sequence (commands, then single warnings, then time-outs; e.g., Eyberg, Nelson, & Boggs, 2008; McNeil & Hembree-Kigin, 2010). A promising approach toward reconciling these somewhat contradictory recommendations is to move beyond all-or-none disciplinary recommendations to understand the conditions in which power assertion techniques and disciplinary reasoning are each most effective. The optimal use of disciplinary responses likely depends upon the unique characteristics of the toddler, the mother, and the situation itself. Such an approach accommodates the bidirectional influence of mothers and toddlers on each other and focuses upon specific episodes in which disciplinary reasoning is employed. Thus, the purpose of the current study was to examine how the effectiveness of mothers' disciplinary reasoning for facilitating toddler compliance varies with child characteristics, mother characteristics, and characteristics of the discipline episode.

This study contributes to parenting literature in a few key ways. Overall, the study provides stronger causal evidence regarding the effects of disciplinary reasoning on child compliance compared to traditional analyses by controlling for both state and trait measures of oppositionalism to reduce confounds with child effects (Bush & Peterson, 2013). Over-reliance on correlational evidence resulted in many parenting studies lumping large

categories of parental tactics together and presenting them as generally "good" (fostering positive outcomes) or "bad" (fostering negative outcomes). Positive parenting (including reasoning) correlates with good outcomes, and negative parenting with bad outcomes. Such broad generalizations fail to make discriminations within those broad categories, either among types of positive parenting or among situations in which a particular type of positive parenting will be most effective. The current study addresses this gap by examining several characteristics of the toddler, mother, and situation that may be moderators of the effectiveness of disciplinary reasoning when toddlers are not complying with parental behavioral standards. Secondly, this study relies on mothers' perceptions as the basis of corrective actions. Each mother holds behavioral expectations and responds accordingly when she perceives that the toddler has exceeded the upper limits of acceptable behavior (Bell & Chapman, 1986). Recognizing the salience of mothers' perceptions may prove more valuable than objective approaches for studying mother-toddler interactions, because mothers respond to their toddlers based upon their perceptions of situations (Thomas & Thomas, 1928). Finally, the unique situational characteristics of each mother-toddler discipline interaction may influence the outcome. While few studies have accounted for situational factors (Holden, 2010), there is evidence that parental responses vary across settings (Bradley, 2002) and time of day (Holden, Coleman, & Schmidt, 1995). In order to explore the interaction of toddlers', mothers', and situational characteristics of the discipline episodes, we utilized Bell's Control Theory to frame the current study.

Theoretical Perspective on Disciplinary Reasoning

Parenting scholars recognize the significance of the contributions of both the parent and the child in disciplinary contexts. Larzelere, Cox, and Mandara (2013) utilized Bell's

(Bell & Chapman, 1986) control system model focusing on the bi-directional nature of parent-child interactions as a framework for addressing some discrepancies among recommendations regarding specific disciplinary practices, including reasoning. Bell proposed that parents and children have behavioral expectations for one another, and there are both upper limits and lower limits to what each partner considers acceptable from the other. When those limits are exceeded in specific episodes, the parent or child responds to redirect the other partner's behavior back to the acceptable range. Parents use a variety of corrective strategies to restore child behavior to an acceptable range when the child's behavior goes outside the parent's expectations.

Bell and Chapman (1986) conceptualized parents as having a repertoire of responses for re-directing the child's behavior, often involving a sequential, hierarchical order. Parents who are aware of this collection of responses are described by Bell (1979) as "thinking" parents, who choose responses to specific situations after evaluating several situational factors: "In other words, the mother is using her head rather than responding mechanically as would a moth to a light" (p. 822). Bell (1971) discussed preliminary evidence that parents and children display patterns of responses, which at the time awaited methods for analyzing specific sequences of parent-child interaction. Subsequent research found that mothers employ sequenced responses (Grusec & Goodnow, 1994) tailored to the type of toddler noncompliance perceived by the mother (Ritchie, 1999). Building on this research, the present study uses Bell's control theory to investigate the conditions that could moderate the effectiveness of disciplinary reasoning in response to toddler noncompliance. Consistent with Bell's recommendations, the current study moves beyond examining only mother characteristics and simultaneously considers relevant toddler and situational characteristics.

Background

Many researchers and theorists have pointed out the limitations of research on parenting practices, some specifically discussing inconsistent evidence about disciplinary reasoning. First, "effectiveness" has been measured by different outcomes, typically compliance, moral internalization, reduction in behavior problems, or some combination thereof. Next, much of the research on specific parenting practices was based on the assumption that effectiveness is invariant (e.g., regardless of how it is implemented or the context in which it is used). In contrast, this study investigated whether the effectiveness of disciplinary reasoning in gaining toddler compliance with mothers' expectations varied by specific characteristics of the mother, toddler (e.g., age, gender, temperament), and situation. To account for so many factors in one analysis is a complex task, but all these factors may be important to make better discriminations between more and less effective situations for mothers to use disciplinary reasoning with toddlers.

Toddler Noncompliance

Toddlers frequently respond to parental requests with noncompliance (Kuczynski & Kochanska, 1990). Kuczynski and Kochanska (1990; Kuczynski, Kochanska, Radke-Yarrow, & Girnius-Brown, 1987) introduced a differentiated model of noncompliance, arguing that noncompliance is not necessarily dysfunctional for children, but actually can serve positive functions as young children develop their sense of personal autonomy and learn to express that autonomy in socially acceptable ways. Related to this, the expression of noncompliance varies in quality and skill; some types of noncompliance indicate self-regulation in how preschoolers express disagreement with a parent, whereas other noncompliance types seem more out-of-control. Passive noncompliance, characterized by

ignoring or not responding to a command, is often replaced by more active strategies during toddlerhood (Kuczynski et al., 1987). The more skillful active strategies acquired during the toddler and preschool years are less aversive to parents. For example, toddlers may try negotiation to persuade the parents to drop or modify a request to reach a solution that is mutually satisfactory.

Not only are more skillful types of noncompliance less aversive to parents, but they may serve as stepping stones toward more positive actions, such as children taking initiative and standing up to perceived injustice (Grusec, 2012). Grusec noted that reasonable resistance to parental demands can produce positive outcomes when authoritative parents are willing to negotiate or effectively resolve conflict: "Refusal in the face of reasonable grounds for protest is a positive act so long as it is not defiant or antisocial in its character" (p. 55). When preschoolers are first expressing their autonomy, parents need to help them learn how to express their independence more appropriately, so that they move beyond a stage of independence toward interdependence (Mahler, Pine, & Bergman, 2000). Patterson's (1982) Coercive Process Theory holds that preschool children are likely to learn that antisocial behavior pays off if they often get their way by being aversive. Therefore, it is important for parents to guide their children toward expressing their developing autonomy in a more skillful way that will de-escalate rather than escalate discipline episodes. This is not to say that compliance is no longer a goal of parent-child interactions. On the contrary, compliance may serve as evidence of child self-regulation and socialization in addition to satisfying parental expectations for behavior (Kaler & Kopp, 1990). Nonetheless, research provides a strong case that compliance should not be the only outcome of interest. For all these reasons,

this study investigated the conditions under which reasoning de-escalates the intensity of noncompliance in addition to predicting compliance.

Mothers' Disciplinary Reasoning

Discipline episodes are an important context in light of Bell's control theory. In a discipline episode, a mother is responding to behavior that has exceeded her expectations for acceptable activity because she perceived the need for corrective action. Hoffman (2000) explains the importance of discipline episodes in the following way: "the foundation for guilt and the prosocial moral internalization necessary for combating egoistic needs in conflict and other transgression situations originates in discipline encounters" (p. 140). Hoffman further points out that these are frequent opportunities through which parents can evaluate a toddler's maturity and promote moral internalization. Disciplinary reasoning, the focus of this study, is one tool in a repertoire of responses mothers can employ when they perceive their toddler has exceeded the upper limits of acceptable behavior in a given discipline episode (Bell, 1971). Maternal disciplinary reasoning describes the act of providing a verbal response to motivate a child to change behavior (Hoffman, 1970; Kuczynski, 1983), which includes induction (e.g., explaining how behavior affects others; Hoffman, 2000; Rollins & Thomas, 1971). Mothers begin using verbal justification for corrective interventions in early toddlerhood and reportedly provide such reasoning as often as 50% of the time by the age of 30 months (Chapman & Zahn-Waxler, 1982; Dunn & Munn, 1987). The toddlers' ability to understand such reasoning can be inferred by their own increased use of reasoning during this developmental period (Dunn & Munn, 1986; 1987).

Because disciplinary reasoning is only one potential maternal response to toddler misbehavior, the key to understanding its effectiveness is likely related to how reasoning

works in conjunction with other disciplinary responses in the repertoire. Larzelere, Sather, Schneider, Larson, and Pike (1998) found that a combination of reasoning and punishment was more effective in response to disobedience than was reasoning alone or punishment alone. These results support the case for examining whether mothers' use of nonphysical punishment enhances the effectiveness of disciplinary reasoning in toddlers. Effective use of such combinations during early years might increase the likelihood that mothers can rely primarily on disciplinary reasoning in the future, as the need for power assertion to enforce it decreases. Larzelere et al. demonstrated that the effectiveness of reasoning alone increased for 2- to 3-year-olds after it was paired with nonphysical punishment. In addition to this combination with nonphysical punishment, the current study extends this line of research by examining a variety of factors that may influence the effectiveness of disciplinary reasoning in decreasing the intensity of toddler noncompliance.

Toddler Effects in Discipline Contexts

Toddler demographics. The effectiveness of reasoning likely varies with the *age* of a preschooler. Kuczynski and Kochanska (1990) explained that a child's capacity for compliance increases significantly over the first three years of life. Simultaneously there are substantial changes in the form of their noncompliance from toddlerhood to age five. These developmental shifts are at least partly due to the child's level of mastery of verbal and self-regulatory skills. For instance, Kaler and Kopp (1990) examined the relationship between comprehension and compliance in young toddlers, reporting that older toddlers comprehended significantly more nouns and verbs than younger toddlers and toddlers are less likely to comply when they do not comprehend the request. Thus, whether or not toddlers comprehend the mother's explanation in disciplinary reasoning is likely related to

age and subsequent compliance. In addition to limited comprehension, mothers of toddlers have had less time to learn about their child's needs and the type of reasoning that is most appropriate to meet those needs, particularly when parenting a firstborn child (Hawk & Holden, 2006).

Gender of the toddler appears to be associated with differences in parental discipline. Kochanska's research (Kochanska & Aksan, 1995; Kuczynski & Kochanska, 1990) indicated that boys are generally less compliant than girls. Specifically, girls were less likely to use refusals and defiance. One would expect mothers' patterns of reasoning to vary by gender if they perceive a different frequency or intensity of noncompliance for boys versus girls. Further, parents may choose different disciplinary responses from their repertoire based on gender. Pinderhughes, Dodge, Bates, Pettit, and Zelli (2000), for example, reported that parents used more harsh punishment for boys, while Lansford, Wager, Bates, Dodge, and Pettit (2012) reported that mothers used reasoning more frequently with boys than with girls. According to Bell's control theory (Bell & Chapman, 1986), the mother's perception of noncompliance prompts a response chosen from her parenting repertoire to restore the child's behavior to the acceptable range. The current study considers the child's gender an important demographic characteristic to consider because evidence suggests that gender is related to both perceptions of noncompliance and disciplinary responses.

Temperament. The effect of parenting practices is also likely contingent upon toddler temperament (Degnan, Henderson, Fox, & Rubin, 2008; Kiff, Lengua, & Zalewski, 2011). Although influenced by parenting, temperament is significantly driven by genetic and biological factors (Shiner et al., 2012). Rothbart (2011) conceptualized three major dimensions of temperament: *effortful control* represents the ability to regulate one's own

behavior and attention; *surgency*, sometimes used synonymously with extraversion (Rothbart, 2005), represents positive affect and activity; and *negative affect* represents negative emotional responses, such as fear and anger. In a study of mother-toddler interaction in a clean-up task, Lehman, Steier, Guidash, and Wanna (2002) observed that toddlers who were more socially fearful and less prone to anger were more likely to exhibit compliance. Compliance and defiance also have been linked to negative reactivity of toddlers. Lickenbrock et al. (2013) found complex interactions between temperament and compliance. For instance, infants with low negative affectivity and secure attachments with mothers demonstrated higher committed compliance in toddlerhood. Thus, toddler characteristics likely exert influence on the link between parenting behaviors and outcomes, but the relationship varies based on the specific temperament factors and outcomes that are measured. The proposed study, then, includes toddler age, gender, and temperament (e.g., effortful control, surgency, negative affectivity; Rothbart, 2011) as important factors in predicting the effectiveness of disciplinary reasoning.

Mothering Characteristics and Disciplinary Reasoning

"Thinking" parent. Bell (1979) proposed that rather than using a singular, rigid response when children exceed behavioral limits, parents employ a hierarchically ordered series of responses depending upon the eliciting behavior of the child. Bell described a "thinking mother" (p. 821) as one who classifies and compares the child's behavior with her expectations before selecting a thoughtfully chosen response from her repertoire of possible ways to address the child's unsatisfactory behavior. Bell and Chapman (1986) highlighted examples of specific phenomena, such as anticipatory discipline (Chapman, 1979; Holden, 1983) and adjusting responses for short- versus long-term goals (Kuczynski, 1984). Thus, a

thinking mother has a nuanced plan to alter toddler noncompliance, and her choice of a corrective action depends upon the intensity of a particular act of noncompliance and her perceptions of the toddler's underlying motives.

Mothers' responsiveness. Mothers' responsiveness characterizes a second critical dimension of the overall parenting context, complementary to the control dimension represented by disciplinary reasoning in the current study (Baumrind, 2013). Responsiveness is defined by emotional warmth and supportive behaviors directed toward the needs of the toddler (Baumrind, 2013). Empirical studies provide support for the moderating role of maternal support in disciplinary contexts (Deater-Deckard, Ivy, & Petrill, 2006; McLoyd & Smith, 2002). Based on observations of a clean-up task with toddlers, Lehman et al. (2002) argued that maternal sensitivity (a form of responsiveness) was one of the most salient predictors of toddler compliance. Therefore, mothers' responsiveness warrants consideration as a moderator in the proposed study of disciplinary reasoning.

Demographic characteristics. Mothers' demographic characteristics may be related to disciplinary reasoning and toddler responses. Existing literature demonstrated that demographic factors, such as SES and ethnicity, are associated with mothers' discipline strategies (Kochanska, Aksan, Penney, & Boldt, 2007; Lansford et al., 2012; Pinderhughes et al., 2000). In one study by Lansford et al. (2012), reasoning was reported as the most frequent disciplinary response from all mothers of first- through third-grade children according to questionnaire data, but the same mother-report data indicated European American mothers used reasoning more often than African American mothers. Differences in demographic factors may moderate the outcomes of disciplinary responses due to the meaning parents attribute to the toddler's action, maternal stress associated with factors like

SES, or lack of support (Pinderhughes et al., 2000). Because there is evidence of both direct and indirect effects, the current study includes SES, ethnicity, and marital status as covariates or potential moderators of the effectiveness of mothers' reasoning to decrease toddler noncompliance intensity.

Situational Factors and Mothers' Disciplinary Reasoning

The characteristics of episodes of particular mother-toddler interactions are salient determinants of discipline (Holden, 2010), though infrequently studied. Specific characteristics of the situation can have transient effects on mothers' responses based on the moment-by-moment interaction between mother and child, the intensity of a noncompliance episode, or the overall difficulty over a longer episode. Ritchie (1999) found that mothers of three-year-old children were more likely to use reasoning and verbal power assertion early in a discipline episode. As the episode continued, some mothers changed to more aversive strategies to modify child behavior (e.g., physical power assertion, timeout). Explaining and offering alternatives were more likely to be used after a toddler whined or negotiated, but mothers in Ritchie's study were significantly less likely to use reasoning after defiance. It appears that disciplinary reasoning is one of the first responses in the mother's sequential repertoire. If reasoning is followed by compliance, then the episode may end. However, congruent with Bell's control theory, mothers are more likely to use other behaviors from their disciplinary repertoire when noncompliance continues (Wilson, Whipple, & Grau, 1996).

In addition to when the behavior occurs within the episode, mothers may find disciplinary reasoning to be more or less effective based on the *length of the discipline episode*. Ritchie (1999) contrasted mothers' behaviors during two types of episodes: single

power bouts and extended power bouts. Mothers exhibited different patterns of responses based on the type of episode. Ritchie explained, "One implication of these results is that the same maternal behavior might have different effects within a single noncompliance episode as compared with maternal responses within an extended power bout" (p. 588). Thus, characteristics of the episode itself may influence whether or not disciplinary reasoning is likely to modify a child's behavior, and the mother may take this into account as she responds to her toddler's noncompliance.

Hypotheses

The hypotheses for this study were designed to identify the conditions under which mothers' disciplinary reasoning would be most effective at de-escalating noncompliance during specific discipline episodes. Related to toddler characteristics, we expected that mothers' disciplinary reasoning would be more effective with older toddlers than younger toddlers. The effectiveness of mothers' disciplinary reasoning was expected to depend upon major dimensions of early temperament (e.g., effortful control, surgency, negative affectivity; Rothbart, 2011); more specifically we believed reasoning would be more effective for children with high effortful control, high surgency, and low negative affectivity. Finally, we expected mothers' disciplinary reasoning to be more effective with girls than with boys.

In addition to toddler characteristics, we hypothesized that several mother characteristics would influence the relationship between mothers' disciplinary reasoning and toddlers' noncompliance. First, we expected that disciplinary reasoning would be more effective when utilized by a "thinking" mother, who indicates that she uses a planned sequence of responses or that responses vary depending upon underlying reasons for the

misbehavior. We expected that disciplinary reasoning would be more effective when used by mothers with high responsiveness (e.g., warmth, involvement). Additionally, we proposed that the effectiveness of disciplinary reasoning would vary with mothers' demographic characteristics (e.g., level of education, SES, marital status, ethnicity). Finally, we anticipated that disciplinary reasoning would be more effective when mothers reported they were willing to use it in conjunction with nonphysical punishment if necessary.

Two hypotheses focused on situational factors that could influence the effectiveness of mothers' disciplinary reasoning. We expected that disciplinary reasoning would be more effective when used in response to milder types of toddler noncompliance. Moreover, based on Ritchie's (1999) distinction between single power bouts and extended power bouts, we expected disciplinary reasoning would be more likely to predict de-escalation of noncompliance in shorter discipline episodes as opposed to more lengthy episodes. The longer an episode continued, the less effective disciplinary reasoning would be. Thus, the proposed study takes a comprehensive approach to analyzing the effectiveness of disciplinary reasoning in response to toddler noncompliance. Specifically, the inclusion of toddler, mother, and episodic characteristics has potential to address inconsistencies and remaining questions about the optimal conditions for disciplinary reasoning with toddlers.

Method

Participants

The sample consisted of 105 mother-toddler pairs recruited through a convenience sampling technique through university connections and local organizations (e.g., child care centers, Early Head Start, churches, advertising in newspapers and on the internet, word of mouth) associated with a land-grant university in the south central United States. At the

beginning of the study, the mothers' mean age was 30.4 years (*SD* = 4.8). Most of the mothers were Caucasian (80.0%); the rest were Native American (7.6%), African American (4.8%), Hispanic (3.8%), Asian American (1.9%), and Middle Eastern (1.9%). Many of the mothers were married (79.0%), though some indicated they were single (13.3%), separated (4.8%), or cohabiting (2.9%). Sixty percent of mothers reported they had a bachelor's degree; another 25.8% had some college or technical training; and the remaining participants (14.2%) had a high school diploma or less. Occupational prestige was rated for both parents, if applicable, using Hollingshead's (1975) nine levels. The median occupational prestige was Hollingshead's sixth level (e.g., technicians, semi-professionals, small business owners, and graduate students). Toddlers ranged in age from 17.2 to 30.8 months (*M* = 23.8, *SD* = 3.9). Sixty-five of the toddlers were male, and 40 were female. We excluded three toddlers with developmental disabilities that could confound the relationship between reasoning and compliance, leaving 102 mother-toddler dyads for the final analyses.

Procedure

The proposed study was part of a larger longitudinal study of parental discipline. Mothers who heard about the study through the convenience sampling procedures called the principal investigator, who (a) explained the purpose and requirements of participating in the study, (b) ensured the toddler was between the ages of 18 and 30 months, and (c) informed mothers about mandatory reporting laws regarding child abuse and the legal distinction between abuse and lawful spanking. During the screening interview, the first several participants were offered the option of completing the initial phase of data collection in their home or a university laboratory. Seven of the 105 mothers invited the researchers to their homes. However, the advantages of the laboratory setting were recognized quickly, and the

remaining mothers visited the laboratory. At the first meeting, mothers completed interviews and questionnaires, while toddlers were allowed to play with toys. Mothers were contacted by phone the next day or as soon as possible thereafter to continue data collection. A combination of the questionnaires and interviews were used for the proposed study.

Initial data collection. Mothers completed a demographic questionnaire, the Child Behavior Checklist, and the Parenting Styles and Dimensions Questionnaire prior to the initial interview. The interview began with general questions about the mothers' approach to childrearing, two of which were coded for mothers' thinking or self-reflective approach to discipline. Another question asked what discipline tactic mothers used as a last resort. Then, the mother completed the Nurturing and Discipline Practices Questionnaire. The interviewer next followed Ritchie's (1999) protocol using a modified version of the Child Conflict Index (Frankel & Weiner, 1990) to ask mothers about misbehavior problems they had encountered with their toddlers in the previous 24 hours. Mothers rated the difficulty of each misbehavior problem on a 5-point scale (1 = *not at all difficult*, 5 = *extremely difficult*). Researchers used the difficulty rating to identify the most difficult episode of the previous 24 hours and asked mothers to describe their most difficult episode of the day in great detail (e.g., what caused the episode, what the mother did, the toddler's reaction, the mother's next action, the toddler's reaction to that, and back and forth). Each episode ended when the toddler complied or the mother gave in to the toddler. Following this detailed description, the interviewer asked the mothers a series of open-ended follow-up questions (e.g., how she felt, her attributions, what worked and did not work). The interviewer then asked mothers to identify a situation in the same 24-hour period "that you kept . . . from becoming more problematic" (called a potentially problematic episode). Mothers were asked to provide a

detailed description and to answer follow-up questions, identical to the procedures for the most difficult episodes.

Shortly after the interview, mothers completed three questionnaires, of which only the Early Childhood Behavior Questionnaire (ECBQ) is relevant to this study. Prior to starting the ECBQ, a lab assistant initiated a wait task for the toddler, based on Van Zeijl et al. (2006). The assistant showed the toddler a snack or small toy to take home, but gave it to the mother, who was instructed to keep it from her child for five minutes while she completed the ECBQ. After 2.5 minutes, the researchers brought out toys to distract the toddler and to prepare for the cleanup task. For the cleanup task, mothers were instructed to play with their toddler for five minutes and then direct the toddler to put the toys in a portable storage bin. Mothers were asked not to put toys away for the toddler at first, but after one minute, mothers could show the toddler how to put toys in the bin. The cleanup task ended after five minutes. Before mothers left the laboratory, the researchers scheduled a time for a follow-up telephone call.

Telephone interview. As soon as possible, researchers contacted mothers for a telephone interview. The ideal time frame was 24 hours after the initial interview, but it often took two or more days for researchers to make contact with the participant by phone. Again using Ritchie's (1999) protocol, researchers asked mothers about toddler misbehavior problems that had occurred in the 24 hours preceding the phone call. Next, mothers were asked to provide detailed descriptions of the most difficult and potentially problematic toddler misbehavior episodes that occurred within that 24-hour period. Interviewers also asked the mothers to provide a detailed description of a discipline episode that occurred in

the laboratory, usually during either the wait task or cleanup task. Thus, mothers provided detailed reports of five episodes with their toddlers that were used in the current study.

Measures

Mother-reported discipline episodes. Discipline episodes were coded based on a slightly expanded version of Ritchie's (1999) codes (see Table 1). From the interview transcripts, coding of each episode began when the mother perceived some type of toddler noncompliance. This first act of noncompliance was not included as a "turn" in the analyses, but it was coded in order to control for the type of behavior to which mothers were responding. Following the initial noncompliance, mothers' responses included behaviors such as explaining, verbal power assertion, physical power assertion, and offering an alternative. The toddler's response was then coded to reflect either compliance or the intensity of noncompliance in response to the mother's directive (e.g., simple refusal, whining, defiance). Each turn consisted of at least one mother response and the following child behavior. Mothers' actions and toddlers' responses were then coded turn by turn until the toddler complied or the mother dropped the issue.

Reasoning was operationalized using a dummy code that was group-mean centered to control for all confounding variables except ones that vary during an episode (Raudenbush & Bryk, 2002). Reasoning was broadly defined to include explanations and offering an alternative to the toddler. There are several indications that offering an alternative behavior is closely related to reasoning, at least in young preschoolers. First, it was the only mother tactic other than explaining (Ritchie's "reasoning") that was part of the negotiation sequence in Ritchie's (1999) study of 3-year-olds. Second, the item "suggesting a compromise" loaded on the reasoning factor on the Nurturing and Discipline Practices Questionnaire (NDPQ)

created for this project (Larzelere & Knowles, 2013). Third, preliminary analyses produced the most consistent interactions of reasoning by noncompliance intensity on major longitudinal outcomes when reasoning was defined broadly to include offering alternatives (Knowles, Larzelere, & Lin, 2014).

To operationalize noncompliance intensity, this study used a 4-point rank order of the skillfulness of noncompliance based on previous studies by Kuczynski and Kochanska (1990) and Ritchie (1999). Compliance was coded as 1, and the various types of noncompliance were scored as 2 = *skilled* (i.e., negotiation, whining, oriented *toward* the mother), 3 = *intermediate/ambiguous* (i.e., passive noncompliance, simple refusal, *ignoring* the mother), and 4 = *unskilled* (i.e., hitting, defiance, tantrums, *opposing* the mother). When two or three compliance/noncompliance codes were used for the same turn, the noncompliance intensity score for that turn was the mean of the scores for all the codes. We centered this predictor at 2, so that 0 represented skilled noncompliance because reasoning was expected to be maximally effective at that level. For the discipline episodes, coders agreed about what to code 81.2% of the time (81.4% for toddler codes and 81.0% for mother codes). Kappa for all codes was .83 when coding the same events (.85 for toddler codes and .78 for mother codes), indicating good intercoder reliability.

Open-ended interview questions. Researchers used two open-ended questions to look for mothers' indications that their discipline response was dependent upon their appraisal of the disciplinary context or that they had a sequence of responses they planned to try in response to a toddler's misbehavior, if needed. All mothers were asked, "How do you generally deal with your toddler's misbehavior?" and some were asked, "What is your overall plan in dealing with misbehavior?" These questions provided a macroscopic

perspective of mothers' discipline-related goals and intentions, which supplemented the microsocial behavioral codes from the discipline episodes. The following codes were used to identify conditional and sequential responses to misbehavior: 1 = *conditional response* (i.e., the response depends upon the toddler, the type of misbehavior, how tired the toddler is), 2 = *sequential response* (i.e., mother indicates that one or more subsequent steps may be used based on how the toddler responds to an earlier step), 3 = *both* (i.e., mother considers context-specific conditions and uses sequenced responses), 0 = *neither*. Codes of 1, 2, and 3 qualified mothers as "thinking" parents. The use of conditional responses and sequential responses correspond with Bell's contention that "thinking" mothers' responses depend upon their interpretation of several factors (Bell, 1979) or are purposefully selected from a repertoire of hierarchically ordered potential responses (Bell & Chapman, 1986). In addition to the categorical distinction between thinking or non-thinking mothers, we also created a continuous variable for "thinking" mothers from the same set of responses: 0 = *neither conditional or sequential responses*, 1 = *either conditional or sequential responses*, and 2 = *both conditional and sequential responses*. Kappa for all codes was .57 when coding the same events, indicating fair intercoder reliability for initial coding (Fleiss, 2003). However, all coders met weekly to resolve discrepancies by consensus; only consensus codes were used in the analyses.

From the open-ended interview questions, researchers also coded the question, "What last-resort action do you use when nothing else seems to work?" to measure the mothers' last-resort discipline tactics, which may be used to back-up reasoning. For the purposes of this study, a dummy code was created to distinguish the 34 who identified time-out (n = 32) or privilege removal (n = 2) as their last resort tactic. Others in the final sample identified

physical punishment (*n* = 54), forced compliance (6), yelling (1), or a milder tactic (7) as their last resort. The dummy code was called time-out as last resort and was z-scored for the analyses.

Nurturing and Discipline Practices Questionnaire. Mothers completed the Nurturing and Discipline Practices Questionnaire (NDPQ), a new instrument developed for this study. The NDPQ was designed to reduce common problems with self-report parenting measures (e.g., understanding questions, recall) by asking mothers to indicate the number of times they had used very specific behaviors toward the toddler included in our sample in the last two or seven days. Asking mothers about 34 specific parenting behaviors, both nurturing and disciplinary practices, allows finer discriminations within broad categories of behaviors and prevents incorrect inferences. The first 11 questions on the NDPQ were used in the present study, because they asked mothers to recall the number of times they used particular nurturing behaviors toward their toddler in the preceding two days, ranging from 0 times to 21+ times on a 7-point Likert-type scale (0 = *0 times,* 1 = *1 time,* 2 = *2 times,* 3 = *3 to 5 times,* 4 = *6 to 10 times,* 5 = *11 to 20 times,* 6 = *21 or more times*). An exploratory factor analysis of the full NDPQ was implemented using maximum likelihood with oblimin rotation (Larzelere & Knowles, 2013). Two subscales emerged as measures of mother responsiveness: a 4-item subscale measuring warmth and a 7-item subscale for involvement. Warmth items included behaviors such as "hugged your child," "kissed your child," and "said 'I love you.'" Mothers' mean item scores on warmth ranged from 3 (= 3 to 5 times) to 6 (= 21+ times) with a mean subscale score of 5.12 (about 11-20 times), *SD* = .80. Cronbach's alpha for the subscale was .85 in the current sample. The involvement subscale included 7 items, counting behaviors such as "encouraged talking," "played with child," and "gave full attention."

Mothers' mean item scores on the involvement subscale ranged from 1.71 (about twice) to 5.86 (about 21+ times in two days) with a mean subscale score of 4.17 (6 to 10 times), *SD* = .82. Cronbach's alpha for the subscale was .83.

Early Childhood Behavior Questionnaire. The effortful control dimension of temperament was measured using the attention-focusing, attention-shifting, and inhibitory control subscales from the Early Childhood Behavior Questionnaire (ECBQ), following Spinrad et al. (2007). For all items, mothers rated toddlers' behavior on a 7-point Likert-type scale (1 = *never*, 7 = *always*). The attention-focusing subscale included 12 items (α = .70) designed to measure the toddler's ability to concentrate on a task (e.g., "When playing alone, how often did your child become easily distracted?"). The attention-shifting subscale included 12 items (α = .65) measuring toddlers' ability to move their attention efficiently to another stimulus or task (e.g., "When playing outdoors, how often does your child look immediately when you pointed at something?"). The third subscale, inhibitory control, used 12 items (α = .78) to assess toddlers' skill in regulating their own behavior (e.g., "When told 'no,' how often did your child stop an activity quickly?"). All 36 items from the subscales were combined to produce an overall measure of toddler effortful control with a Cronbach's alpha of .78 in the current sample.

Child Behavior Checklist. The Child Behavior Checklist for 1.5- to 5-year-olds (CBCL; Achenbach & Rescorla, 2000) is a 99-item inventory measuring a variety of behavioral, emotional, and social problems in early childhood. Mothers rated each Likert-type item as 0 = *Not true*, 1 = *Somewhat or sometimes true*, or 2 = *Very true or often true* based on their toddler's behavior over the previous month. Empirical research has established good psychometric properties of broadband scales for externalizing, internalizing,

and total behavior problems (Ebesutani, Bernstein, Nakamura, Chorpita, Higa-McMillan, & Weisz, 2010). This study included only new temperament-related subscales described below.

Toddler temperament-related subscales. Rothbart (2011) conceptualized three primary dimensions of temperament: effortful control, surgency, and negative affectivity. The larger longitudinal study included only the effortful control items from the ECBQ. We constructed proxy measures for the surgency and negative affectivity dimensions of toddler temperament from the CBCL to facilitate the examination of all three dimensions of temperament as moderators of reasoning and child noncompliance. To create the proxy measures, we conducted an exploratory factor analysis of relevant CBCL items using maximum likelihood with oblimin rotation (Larzelere, 2014). Based on the factor analysis and conceptual considerations, the new temperament measures included two subscales for low surgency and two subscales for negative affectivity. The subscales for low surgency (α = .68) were wary and lethargic. The wary subscale included six items (α = .63), such as "Cries a lot," "Gets too upset upon separation from Mom," and "Shows little interest in surrounding things." The lethargic subscale had seven items (α = .66), including "Underactive, slow moving, no energy" and "Unhappy, sad, depressed." The wary and lethargic subscales were reverse scored, so that high scores represented high surgency. The two subscales for negative affectivity (α = .71) were fearful and moody. The 6-item fearful subscale included behaviors such as "Fears certain animals/situations/places" and "Too fearful/anxious." The 5-item moody subscale included behaviors such as "Easily jealous" and "Sudden changes in mood." The Cronbach's alphas for the fearful and moody subscales were .65 and .62, respectively.

Results

Data Organization

Multilevel modeling was used to examine the immediate effect of mothers' disciplinary reasoning on toddler noncompliance de-escalation and whether the effectiveness of disciplinary reasoning interacted with the various toddler, mother, and episode characteristics. This multilevel modeling can be conceptualized as a multiple regression analysis that integrates three levels: disciplinary episode turns (Level 1) nested within discipline episodes (Level 2) nested within mother-toddler dyads (Level 3). Analyses predicted noncompliance intensity on each turn, a four-point scale ranging from the three most defiant codes at the intense, unskillful end (4) to compliance (1) at the most skillful, least intense end.

The data at Level 1 were the codes about mother behaviors and child behaviors within each "turn." After the mother detected some behavior that warranted her action, Turn 1 consisted of the mother's initial response to the toddler's misbehavior and the toddler's response to the mother's actions, coded in terms of compliance or type of noncompliance. The mother's next actions and subsequent toddler responses were coded in Turn 2, and so on until the toddler complied or the mother dropped the issue. Thus, each turn included at least one mother action and at least one child behavior. Analyses specifically predicted the toddler's noncompliance intensity immediately following the mother's disciplinary action on that turn. Some turns were dropped from the data set before running analyses. For example, we dropped 104 turns that occurred in the middle of an episode that included only compliance because the current study was specifically interested in mothers' responses to noncompliance. Other turns eliminated from the data set included incomplete final turns (i.e., no child code because the episode ended when the mother gave in), turns that were

included in repeated cycles of identical mother and child codes, and the 16th to 26th turns on the single longest reported episode. This longest episode was viewed as an outlier and was trimmed to make it as long as the second longest episode, which lasted 15 turns. Eliminating these turns was necessary to handle missing data or to avoid the possibility of atypical or repetitive turns biasing the results. The final Level 1 data set included 455 episodes with a total of 1457 turns.

Predictor variables were included at the most appropriate level (see Table 4). The central predictor was a group-mean-centered dummy code indicating whether reasoning was used or not on any given turn. The other turn-level predictor was noncompliance intensity in the preceding turn. This allowed us to test whether broadly defined reasoning varied in effectiveness by the intensity of toddler noncompliance perceived by the mother. The preceding noncompliance intensity was included as both a main effect and as an interaction with reasoning, identical to how interactions are tested in multiple regression analyses. At Level 2, the episode-level predictors were the number of turns in an episode and the proportion of the episode's turns that used reasoning, which is equal to the mean of that episode's dummy codes for reasoning. The Level 3 data set included characteristics about each mother-toddler dyad that did not vary across episodes, such as the mother's warmth and involvement from the NDPQ, child temperament, demographic characteristics (i.e., SES, marital status, ethnicity), and the proportion of turns that included reasoning across all episodes for each dyad. Several of the predictors were centered or standardized either to make more meaningful interpretations of the coefficients or to distinguish within-episode, within-dyad (and between-episode), or between–dyad effects. For instance, the dummy codes for reasoning were group-mean centered in order to allow us to distinguish between

within-episode, within-dyad, and between-dyad effects with congruent predictors at Level 2 and Level 3 (D. W. Osgood, personal communication, June 14, 2014). The child's age was grand-mean centered, and we used standardized *z* scores for SES, mother's responsiveness, and temperament subscales to make more meaningful interpretations of coefficients. Predictors at Levels 2 and 3 were tested as main effects and as a moderator of the effect of reasoning at Level 1. The latter was equivalent to testing an interaction between Level-1 reasoning and the specified predictor at Level 2 or 3.

Preliminary Analyses

The current study was designed to test the immediate effectiveness of reasoning in de-escalating toddler noncompliance during discipline episodes. First, we examined the frequencies of mothers' use of reasoning during discipline episodes. Of the 102 mothers in the analyses, 97.1% used reasoning at least once. Across 455 discipline episodes, 67.5% of the episodes included the use of disciplinary reasoning at least once. Of the episodes reported, 42.6% of the episodes were identified as Most Problematic episodes; 38.1% were Potentially Problematic episodes, and 19.3 % were Observed discipline episodes (e.g., during the wait task or cleanup task). The Pearson Chi-Square test revealed that the presence of reasoning did not vary significantly by the type of episode, χ^2 (2, $N = 455$) = .23, $p > .10$.

Multilevel Modeling

Hierarchical linear modeling was used to examine the effectiveness of reasoning on noncompliance intensity. Often the beginning step of hierarchical linear modeling is to calculate the intraclass correlation (ICC) to estimate the nonindependence of Level 1 data units. The ICC of the fully unconditional model was .08, indicating a mutltilevel model was appropriate (Hayes, 2006). Even though the ICC was low, the variance components at

Levels 1 and 3 were significant. Thus, we continued building the multilevel model to allow differentiation of the influence of predictors at the turn, episode, and dyad levels. To begin model construction, we tested the effectiveness of each predictor individually and its interaction with reasoning (see Table 5). Then, all significant predictors, significant interactions with reasoning, and covariates were included in a comprehensive model to look at the effectiveness of reasoning in conjunction with and controlling for potential confounding variables. We dropped nonsignificant predictors (i.e., effortful control, negative affectivity, "thinking" parent, maternal warmth) from the comprehensive model using a one-tailed test. The coefficients of all predictors and covariates in the composite model are included in Table 6.

At Level 1, the individually significant predictors of noncompliance intensity included the centered dummy code for whether or not reasoning was used on that turn (π_2 = -.34, p < .001) and the intensity of noncompliance in the preceding turn (π_1 = .21, p <.001). Reasoning was more likely to de-escalate noncompliance than other mother responses. Also, the coefficient for the intensity of noncompliance indicates that there is a significant autoregressive effect: Higher levels of intensity of noncompliance in the preceding turn were likely to predict higher levels of intensity of noncompliance on the current turn. Noncompliance intensity did not interact with reasoning as originally expected. The final level-1 equation was as follows:

$$Y_{tij} = \pi_{0ij} + \pi_{1ij}Y_{(t-1)ij} + \pi_{2ij}R_{tij} + e_{tij}$$

where Y_{tij} is the noncompliance intensity in turn t for episode i within dyad j, $Y_{(t-1)ij}$ is the noncompliance intensity in the preceding turn, and R_{tij} is the centered dummy code for reasoning.

At Level 2, we tested the number of turns per episode and the proportion of those turns with reasoning. The number of turns per episode did predict higher noncompliance intensity during longer episodes, $\beta_{01} = .07$, $p < .001$. The more turns an episode had, congruent with Ritchie's extended power bouts, the higher was the mean noncompliance intensity. Proportional use of reasoning predicted lower noncompliance intensity, $\beta_{02} = -.28$, $p = .003$. The interactions of these two variables with Level-1 reasoning were not significant. Thus, the level-2 model included two main effects as predictors:

$$\pi_{0ij} = \beta_{00j} + \beta_{01j}NT_{ij} + \beta_{02j}Pr(R)_{ij} + r_{0ij}$$

$$\pi_{1ij} = \beta_{10j}$$

$$\pi_{2ij} = \beta_{20j}$$

where NT_{ij} is the total number of turns for the episode, and $Pr(R)_{ij}$ is the proportion of turns with reasoning. Note that reasoning predicted greater de-escalation of noncompliance within episodes at Level 1 and between episodes at Level 2.

Of the dyad-level predictors, mother involvement and toddler surgency were significant moderators of the within-episode association of reasoning with noncompliance intensity (see Figure 2). Reasoning was more effective with toddlers with high surgency, $\gamma_{201} = -.17$, $p < .05$. On the other hand, reasoning was less effective for the most highly involved mothers, $\gamma_{202} = .22$, $p = .02$. Time-out as last-resort was a marginally significant moderator; reasoning was marginally less effective for mothers using time-out as their last-resort tactic, $\gamma_{203} = .16$, $p = .06$. The mean proportion of turns with reasoning was not significant at the dyad level, $\gamma_{009} = -.03$, $p = .94$. This indicates that the effectiveness of reasoning is not a between-family effect, but a within-family effect. That is, noncompliance intensity de-escalates faster in episodes with a greater proportion of turns with reasoning compared to

other episodes within that family. In addition, turns with reasoning lead to immediate de-escalations more than other turns within episodes.

At Level 3, the final composite model included interactions between reasoning and surgency, involvement, time-out as last resort, and the mean proportion of turns with reasoning, while controlling for demographic covariates (e.g., gender, age, ethnicity, marital status, SES):

$$\beta_{00j} = \gamma_{000} + \gamma_{001}GENDER_j + \gamma_{002}AGE_j + \gamma_{003}MARITAL\ STATUS_j + \gamma_{004}ETHICITY_j + \gamma_{005}SES_j + \gamma_{006}SURGENCY_j + \gamma_{007}INVOLVEMENT_j + \gamma_{008}LASTRESORT_j + \gamma_{009}MeanPr(R)_j + u_{00j}$$

$$\beta_{01j} = \gamma_{010}$$

$$\beta_{10j} = \gamma_{100}$$

$$\beta_{20j} = \gamma_{200} + \gamma_{201}SURGENCY_j + \gamma_{202}INVOLVEMENT_j + \gamma_{203}LASTRESORT_j$$

Although some of the main effects between dyads did not affect the outcome variable, they were retained in the model either to document equivalent results by demographic characteristics or because their interactions with reasoning were included, following classic ANOVA principles.

Post-hoc analyses were conducted to gather more information to shed light on the finding regarding time-out as last resort, which failed to support hypotheses based on Bell's Control System Model and previous research (e.g., Larzelere et al., 1998), and to examine the different components of reasoning. Indeed, the interaction with time-out as a last-resort tactic failed to enhance the effectiveness of reasoning in de-escalating noncompliance as predicted. The larger longitudinal study included other measures of punishment, so we tested the influence of nonphysical punishment at Level 1 as opposed to the dyad-level last-resort

predictor included in the original analyses. The additional analyses with nonphysical punishment were used to explain the unexpected interaction and to see whether the unexpected interaction would remain after considering the turn-by-turn use of punishment. Testing the combination of reasoning and nonphysical punishment at Level 1 allowed us to look at the immediate effects of mothers' responses, in contrast to the global measures or patterns that are typically analyzed in parenting research. We created a dummy code on each turn for whether nonphysical punishment had been used during that episode up to and including the current turn. This variable did significantly predict de-escalation in the intensity of noncompliance at the turn level, $\beta = -1.04$, $p < .001$, but it did not interact with the effectiveness of reasoning, $\beta = -.07$, $p = .85$. However, the last-resort indicator did remained a marginally significant moderator of reasoning's effectiveness, $\beta = .14$, $p = .08$. Thus when nonphysical punishment had been used during the episode, noncompliance intensity became substantially lower than it was otherwise, but preferring time-out as a last resort still marginally undermined the immediate effectiveness of reasoning.

In the initial analyses, reasoning was a broad label for two disciplinary responses by mothers, explaining her expectations and offering alternatives. To test the contributions of these more specific components, we tested centered dummy codes for each response simultaneously, retaining the covariates and other predictors included in the composite model (see Table 7). Explaining expectations was not a significant predictor of changes in noncompliance intensity with toddlers, $\beta = -.23$, $p = .14$. Offering alternatives was a highly significant predictor of de-escalation, $\beta = -.74$, $p < .001$, suggesting that offering alternatives to toddlers accounts for the effectiveness of reasoning in this study. Explaining significantly interacted with mother involvement, $\beta = .23$, $p = .02$, and noncompliance intensity in the

preceding turn, $\beta = .23$, $p = .04$. In contrast, there were no significant interactions with offering alternatives, although it interacted marginally with mother involvement, $\gamma_{302} = .17$, $p = .10$, and time-out as last resort, $\gamma_{303} = .18$, $p = .08$. Although lag-1 noncompliance intensity did not moderate the effect of reasoning, it did moderate the apparent effect of explaining. As shown in Figure 3, explaining came close to predicting marginal de-escalation of noncompliance when used in response to skillful noncompliance, $p = .14$, but it predicted higher noncompliance intensity than did turns without reasoning when responding to unskilled noncompliance, albeit probably only marginally in this opposite direction. Nonetheless, the significant interaction indicates that the effect of explaining compared to non-reasoning responses is significantly less effective for unskilled noncompliance than it is for skilled noncompliance.

Discussion

The purpose of the current study was to identify the conditions under which mothers' disciplinary reasoning would be most effective at de-escalating noncompliance intensity during discipline episodes. Using Bell's (1971) control system model as a conceptual framework, we hypothesized that thirteen toddler, mother, and situational factors would moderate the association of disciplinary reasoning with immediate de-escalation in noncompliance. Only three factors (e.g., mother involvement, surgency, and time-out as last-resort) interacted with reasoning in its immediate association with noncompliance intensity. Only toddler surgency and last resorts other than time-out predicted increased effectiveness of reasoning in reducing the intensity of noncompliance. Contrary to the original hypotheses, mother involvement predicted a decrease in the effectiveness of reasoning in reducing noncompliance intensity. Even though the results did not support all of the moderation

hypotheses, there were important main effects. Most notably, mothers' use of reasoning predicted de-escalation of noncompliance intensity within discipline episodes regardless of the noncompliance type exhibited by the toddler. In terms of Bell's control model, when mothers perceived that toddler behavior had exceeded the upper limits of acceptable behavior, reasoning was an effective strategy for decreasing noncompliance intensity regardless of the preceding type of noncompliance and other dimensions of temperament, except for surgency, which increased the effectiveness of reasoning further. Grounded in Bell's control system theory, this section further discusses findings, the strengths and limitations of the study, directions for future research, and practical implications.

The operationalization of reasoning included two mother behaviors: offering alternatives and explaining. Additional analyses of the two separate components of reasoning uncovered important distinctions between offering alternatives and explaining expectations to toddlers. The main effect of reasoning was explained almost entirely by offering alternatives. Offering alternatives was more effective at reducing noncompliance intensity than any other discipline tactic, regardless of the preceding type of noncompliance, toddler temperament, or mother characteristics. There are several plausible explanations for this finding. First, toddlers' cognitive abilities may be more appropriately aligned with concrete choices versus cognitive understanding of mothers' explanations of their expectations. Secondly, offering alternatives to a noncompliant toddler acknowledges the toddler's autonomy by trying to identify a compromise that is mutually acceptable to the toddler and mother. This process demonstrates acceptable ways for the toddler to exert personal autonomy. Hoffman (2000) used the term "cushions" to describe parental attempts to "soften the blow" of power-assertive demands: When a parent presents a demand to

correct a child's behavior, particularly in response to negotiation attempts, offering a substitute acknowledges the child's desire and makes the required behavior change more attractive. Additionally, offering alternatives provides a solution in discipline episodes that coordinates the goals of both the mother and the toddler, rather than one party imposing personal preference on the other. This type of collaborative resolution is reminiscent of the authoritative parent's willingness to negotiate (Baumrind, 2013), in contrast to authoritarian parenting in which the mothers impose their will or permissive parenting in which the mothers allow the toddlers to impose their will. More recently, Kochanska and Kim (2014) examined links between a mutually responsive orientation (MRO), effortful control, and compliance, and reported that a positively reciprocal and collaborative MRO supported the development of effort control across the toddler and preschool years and, thus, influenced compliance with parental expectations approximately 40 months later. In light of the finding that offering alternatives predicted immediate decreases in noncompliance intensity in the current study, it appears that collaborative approaches carry both short- and long-term benefits in shaping child behavior. In relation to Bell's theory (1971), collaboration satisfies the goals of both active participants while restoring the toddler's behavior to the acceptable range.

On the other hand, explaining was not significantly effective overall but was significantly more successful at reducing the intensity of noncompliance when mothers were responding to skilled types of noncompliance (i.e., negotiation, whining) rather than unskilled types of noncompliance (i.e., defiance, tantrums). Hoffman (2000) explained that unqualified power assertion can be frustrating for children, but reasons help the child see that the demands are justified. However, in response to defiance or temper tantrums, explaining

why that behavior is unacceptable is unlikely to change the toddler's behavior in the desired direction. This could be related to the affectivity often associated with unskilled types of noncompliance. Larzelere and Merenda (1994) reported that reasoning was effective for disobedience incidents at intermediate levels of distress. They suggested that distress in more intense episodes like fighting could interfere with the child's ability to cognitively process explanations. In the current study, a toddler at the most unskilled levels of noncompliance was throwing a tantrum (i.e., crying, screaming) or being overtly defiant. In the midst of these behaviors, a toddler is not likely to listen to or internalize moral justifications for changing behavior. In fact, Hoffman wrote, "[Unqualified power assertion] may, for example, be the most effective way to control a child who is acting in a particularly obnoxious or openly defiant manner" (p. 148). This argument for differential effectiveness supports selected aspects of Bell's (1971) control theory related to discipline episodes. The separation of the various components of offering alternatives and explaining provides further support for Bell's idea that mothers and toddlers likely make fine-tuned adjustments to their behaviors based on evaluations of one another and the current situation.

The present study strengthens our understanding of disciplinary reasoning with toddlers by focusing on the immediate effectiveness of reasoning. This strategy has often been recommended for all children, but rarely investigated with children this young. This approach to research on parental discipline allows us to make finer distinctions between disciplinary tactics. Because offering alternatives produced no significant interactions, it is likely to be consistently effective for immediate de-escalation of noncompliance intensity regardless of moderating factors, congruent with traditional all-or-nothing recommendations regarding discipline. However, some discipline tactics, such as explaining expectations, are

likely to be more effective when mothers utilize the tactic only when it is appropriate for the toddler, their personal parenting characteristics, and the particular disciplinary episode.

Additionally, the study provides stronger causal evidence in support of Bell's control system model. The analogy between the parent-child relationship and a control system, demonstrates that typical correlations would lead to incorrect conclusions about corrective actions (Larzelere et al., 2013). In order to draw more accurate conclusions regarding discipline strategies, analyses must take into account child effects and other factors that can influence the bidirectional processes that make up the parent-child relationship. However, isolating child- and parent-effects has been challenging (Bell & Chapman, 1986). Although regression analyses in previous research have included both child and mother characteristics in an attempt to capture bi-directionality, the current study captures the moment-to-moment bi-directionality of parent-child relations by including the toddler's preceding type of noncompliance and subsequent turn-by-turn responses of each individual. The toddler's role in the noncompliance episode is crucial to how that noncompliance episode is resolved; the outcome is not completely dependent upon the mother's discipline response. In the current study, the multi-level modeling approach used group-mean centering across all three levels of the data, isolating within-episode effects that contrast turns with reasoning versus turns without reasoning. This allowed us to rule out any between-episode or between-dyad confounds, whether these confounds were actually measured in this study or not. The results suggest that the usual correlations between reasoning and compliance are not due to between-dyad confounding variables. However, because the proportional use of reasoning at Level 2 was a significant predictor, the effectiveness of reasoning may be confounded with between-episode differences within dyads. When analyses do not divide the effects of reasoning into

these three levels, then the between-dyad correlations may be due to characteristics of the episodes rather than characteristics of the dyad, such as toddler temperament. The group-centering at three levels of data in this study helped rule out confounds due to trait characteristics of the child or characteristics of specific discipline episodes that were not necessarily constant at the dyad level. The only kind of confound that can bias within-episode results would have to also vary by turns within episodes. This provides stronger causal evidence for the immediate effects of reasoning, especially for offering alternatives.

In addition to possible turn-level confounds, there were other limitations to the current study. First, the toddlers in this sample were very young (e.g., $M = 23.8$ months). The age of the toddlers in this study could push the limits of when we would even expect reasoning to be effective due to the limited cognitive abilities of the toddlers. However, when considering the young age of the current sample, it is perhaps even more interesting that offering alternatives was particularly effective overall. Secondly, the sample was predominantly Caucasian and well educated (e.g., 60 percent of mothers had college degrees). Further, this study focused solely on mothers of toddlers. Perhaps reasoning could be utilized differently or could be more or less effective when utilized within ethnically and socioeconomically diverse families or when practiced in father-toddler interactions.

Additionally, the current study did not include established measures of all temperament dimensions. Because the larger study collected data only on effortful control, we constructed proxy measures for the surgency and negative affect dimensions of temperament. The surgency dimension in the current study actually represents the extreme opposite of wary and lethargic toddlers and likely does not captures some of the negative aspects of high surgency. Thus, the proxy measure may represent a simpler construct than

surgency, which could explain the reported interaction with reasoning. Although the subscales were supported by factor analysis and conceptual evaluation, the CBCL was not designed specifically to measure dimensions of temperament, and these subscales have not been validated through previous research, thus calling into question the adequacy of our measures of these temperament constructs. Another limitation of the current study is that it looks only at short-term effectiveness of disciplinary reasoning. While the multilevel analysis provides stronger causal evidence for the effectiveness of reasoning than most studies, this study focuses only on immediate effectiveness.

These limitations point to directions for future research. For example, future studies could examine long-term effects of strategies such as explaining expectations or offering alternatives to resolve discipline episodes. Some authors have argued that discipline strategies that successfully elicit immediate compliance may be counterproductive long term (Gershoff, 2002; Patterson, 1982). Therefore, future research may explore whether the short-term benefits of offering alternatives, in particular, would hold up over a longer period of time. Further, the current study compared the use of reasoning to all other discipline tactics lumped together. Researchers should continue to disaggregate some of the other discipline strategies mothers of toddlers use (e.g., warning, ignoring, offering rewards) to make more precise contrasts. The analytic techniques of this study could be utilized to examine other disciplinary practices to help mothers make finer distinctions about when and how corrective actions can be optimally effective with toddlers.

The findings of this study lead to at least three practical implications for mothers of toddlers. First, the main effect of reasoning indicates that reasoning can be an effective strategy for reducing the intensity of noncompliance in toddlers as young as 18 months old.

When a mother perceives that a toddler's behavior warrants a corrective action, reasoning appears to be an acceptable strategy even for very young children with limited verbal skills. But the overall effectiveness of reasoning is primarily due to offering alternatives, perhaps because it is more concrete than explaining. Second, mothers and practitioners who work with toddlers should note that the specific act of explaining expectations is unlikely to elicit the desired outcome when a toddler is throwing a tantrum or displaying defiance. When a parent wants to de-escalate more intense acts of noncompliance, explaining does not fare as well as other discipline strategies, although offering alternatives is the most effective action. Third, the most effective component of reasoning, regardless of the intensity of the precipitating act of noncompliance or toddler temperament, was offering mutually acceptable alternatives to toddlers, an extremely effective strategy for correcting undesirable behavior. Offering alternatives allows the toddler the opportunity to voluntarily choose a course of action that meets their own need or desire and satisfy social expectations. This is one strategy that seems to accomplish authoritative parenting's balance between supporting the growing autonomy of the toddler and their appropriate control of behavior.

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Table 1

Coded Toddler and Mother Behaviors from Discipline Episodes

Category	Behavior	Description
Toddler behaviors (Noncompliance intensity score in parentheses)		
	Compliance (1)	Child does as the mother asks.
	Physical noncompliance – hitting (4)	Child is physically aggressive toward a person, such as hitting, kicking, biting, pinching, or throwing an object at someone.
	Physical noncompliance – tantrum (4)	Child throws a temper tantrum by flailing body, stomping, screaming, yelling, crying strongly in an uncontrolled manner, or aimlessly throwing an object (not at someone).
	Defiance (4)	Child actively refuses mother's request but is not aggressive, including running away, dance around to annoy mother, doing the opposite of what mother requested, smiling or giggling while mishbehaving, or not stopping prohibited activity. Additional examples include shutting eyes, covering ears, or talking loudly to avoid hearing or seeing the mother's directions.
	Passive noncompliance (3)	Child passively noncomplies by continuing a nonactive misbehavior, such as continuing to sit, non-verbal procrastinating, or not starting a requested activity.
	Simple refusal (3)	Child verbally refuses to do as mother asks, denies that the misbehavior occurred, or verbally procrastinates without an explanation (e.g., "I'll do it later").
	Whining/pouting (2)	Child noncomplies by whining, fussing, pouting, using an annoying voice, or whimpering.
	Negotiating (2)	Child tries to bargain, offer an alternative, give an explanation, or reason with mother.

Mother behaviors

Reasoning	Mother gives an explanation or asks a question to clarify the child's viewpoint. This includes explaining why not to misbehave or why to behave appropriately, stating the natural consequence for the behavior, or explaining how the behavior may affect another person.
Verbal power assertion	Mother commands child, tells child "no," or restates a rule without explanation (excludes yelling).
Threatening/ warning	Mother tells child what action she will take if the child does not comply, including counting if used as a warning.
Offering an alternative/ distracting	Mother offers a different possibility, suggests a series of potential choices, gives a compromise, bargains with the child, substitutes a problematic activity or object with a new one, refocuses the child's attention to a new activity or object, changes the topic of discussion, redirects, distracts, or diverts the child.
Giving in	Mother allows the child to have his/her way or accepts an alternative suggested by the child.
Ignoring/ no response	Mother does not response, ignores the child, or tells the child she is ignoring him/her.
Physical power assertion	Mother grabs the child, forces the child to comply, takes away a problematic object, physically restrains the child, picks up the child, or blocks the child without spanking or slapping.
Timeout	Mother places child in a corner, a chair, or room alone.
Privilege removal	Mother takes away an object or activity that the child would normally enjoy. The object or activity could be the source of the problem, unless it was physically removed, which would then be coded as Physical power assertion.
Spanking	Mother spanks the child or slaps the child's hand. If overly severe, code as "Other." Spanking with an instrument counts unless other volunteered information classifies it as overly severe.

Giving to another person	Mother allows another person to handle the problem.
Affection/praise	Mother expresses verbal or physical affection, praises a child, holds the child to soothe or comfort during a discipline episode.
Yelling/shaming	Mother yells, screams, shames child, uses name calling, or says detrimental things about the child (e.g., "I hate you").
Modeling	Mother models or demonstrates appropriate behavior (e.g., puts toys away to get the child to do it too).
Offering a reward/ bribe	Mother promises a reward for appropriate behavior.
Addressing another child	Mother addresses another child involved in the episode.
Other	Mother uses some other action that did not fit into the provided categories.

Table 2

Sources, Measures, Reliabilities, and Operational Definitions of Variables

Variable	Source	Measure	# of items (Reliability)[a]	Operational definition
Outcome variable				
Toddler noncompliance intensity	Lab & phone interview discipline episodes	Mothers' reports	5 episodes (κ = .85)	4 = unskilled noncompliance,[b] 3 = intermediate/ambiguous noncompliance, 2 = skilled noncompliance, 1 = compliance
Toddler characteristics				
Age	Questionnaires	CBCL	1 item	Child's age in months
Gender	Questionnaires	Demographics	1 item	0= Girl, 1 = Boy
Temperament				
Effortful control	Questionnaires	ECBQ	36 items (α =.78) 12 items (α =.70) 12 items (α =.65) 12 items (α =.78)	Combination of following 3 subscales: Attention-focusing subscale Attention-shifting subscale Inhibitory control subscale
Surgency	Questionnaires	CBCL	13 items (α =.68)	Wary & lethargic subscales[c] (reverse scored)
Negative affectivity	Questionnaires	CBCL	11 items (α =.71)	Fearful & moody subscales[c]
Parenting characteristics				
"Thinking" parent	Lab interview	Open-ended questions	(κ = .57)	0 = neither conditional or sequential responses, 1 = either conditional or sequential responses, 2 = both conditional and sequential responses
Parental responsiveness	Questionnaires	NDPQ	4 items (α =.85)	Warmth subscale

			7 items (α =.83)	Involvement subscale
Time-out as last-resort	Lab interview	Open-ended question	1 item	Dummy coded: 1 = time-out (*n* = 32) or privilege removal (2); 0 = physical punishment (54), forced compliance (6), yell (1), or milder tactics (7)
Reasoning variables				
Used in turn	Lab & phone interview	Mothers' reports	(κ = .85)	Dummy coded: Used (1) or not (0), group-mean centered
Prop (reasoning)	Lab & phone interview	Mothers' reports	(κ = .85)	Proportion of turns that reasoning was used out of all the turns analyzed within an incident
MeanProp (reasoning)	Lab & phone interview	Mothers' reports	(κ = .85)	Mean proportion of turns that reasoning was used across all the incidents in a dyad
Situational factors				
Prior noncompliance intensity	Lab & phone interview	Mothers' reports of 5 discipline episodes	(κ = .85)	Skilled, intermediate/ambiguous, unskilled[b]
Non-physical punishment yet	Lab & phone interview	Mothers' reports of 5 discipline episodes	(κ = .85)	Dummy coded: Whether non-physical punishment had been used (1) or not (0) through current turn
Control variables				
Marital status	Questionnaires	Demographics	1 item	Dummy coded: Married (1) vs. separated, cohabiting, single (all 0)
Ethnicity	Questionnaires	Demographics	1 item	Dummy coded: White (1), non-White (0)
Occupational prestige	Questionnaires	Demographics	1 item	Hollingshead (1958) rating system (adapted for today)

[a]Reliabilities are calculated from the Moms & Tots data. [b]Intensity scores for each specific type of noncompliance are given in Table 1. [c]We needed to create proxy measures of two dimensions of temperament from available data to correspond with Rothbart's (2011) conceptualization of child temperament. Exploratory factor analyses produced the specified subscales for Negative Affectivity and Surgency. These new subscales from the CBCL items supplement the Effortful Control scale from the ECBQ to measure Rothbart's three major dimensions of temperament.

Table 3

Mean Frequencies and Percentages of Mother and Toddler Codes

Mother Codes (M = 20.09)			Toddler Codes (M = 17.95)		
Behavior	Mean frequency	%	Behavior	Mean frequency	%
Physical power assertion	3.57	17.77	Compliance	6.11	34.02
Verbal power assertion	3.37	16.78	Defiance	3.59	19.99
Explaining[a]	3.08	15.33	Whining	2.89	16.11
Offering an alternative[a]	3.05	15.19	Passive noncompliance	2.00	11.14
Ignoring	2.31	11.52	Tantrum	1.24	6.88
Affection/praise	1.17	5.81	Simple refusal	1.04	5.79
Give in	0.93	4.64	Negotiation	0.68	3.77
			Hitting	0.41	2.29
Totals	17.48	87.04		17.95	100.00

Note: Mother behavior codes that occurred less than 3% of the time are not shown.
[a]Combined to operationalize Reasoning for this study.

Table 4

Levels of Predictor Variables in the Multilevel Modeling Analysis

Level	Variable	Interaction with disciplinary reasoning
Level 1 – Discipline episode turns		
	Disciplinary reasoning[a]	
	Noncompliance intensity in the previous turn[b]	x
Level 2 – Discipline episodes		
	Number of turns within the discipline episode	x
	Prop (Reasoning)	x
Level 3 – Mother-toddler dyads		
	Toddler's age	x
	Toddler's gender	x
	Toddler temperament (effortful control, surgency, negative affectivity)	x
	Mother's demographic characteristics (marital status, SES, ethnicity)	x
	"Thinking" parent	x
	Mother responsiveness (warmth, involvement)	x
	Time-out as last-resort tactic	x
	Mean Prop (Reasoning)	x

[a]Use within a turn indicated by an episode-mean-centered dummy code.
[b]Centered at skilled noncompliance intensity.

Table 5

Coefficients for Main Effects and Interactions with Reasoning for Individual Predictors[a]

Predictor	Coefficient	*p*-value	Interaction with reasoning	*p*-value
Level 1 (turns)				
Mothers' disciplinary reasoning	-.33	<.001	n/a	n/a
Lag-1 toddler's noncompliance intensity	.20	.04	.07	.46
Level 2 (episodes)				
Number of turns in the episode	.09	<.001	-.01	.66
Proportion of turns with reasoning	-.45	<.001	-.28	.56
Level 3 (dyads)				
Toddler effortful control	-.01	.68	-.02	.83
Toddler negative affectivity	.00	.98	-.03	.71
Toddler surgency	.02	.52	-.16	.04
"Thinking" parent	.02	.61	.06	.55
Mother warmth	-.02	.66	-.05	.49
Mother involvement	.00	.99	.27	<.001
Time-out as last-resort tactic	.06	.08	.14	.06
Mean proportion of turns with reasoning	.03	.89	-.53	.27
Demographic covariates:				
Toddler's age	-.01	.43	.00	.94
Male gender of toddler	.04	.57	-.36	.03[b]
White ethnicity	.23	.01[b]	-.06	.75
SES	.00	.97	-.08	.34
Mother married (vs. other)	.05	.53	.07	.70

[a]Each row includes the coefficient for the predictor and the interaction with reasoning when including reasoning in the model. [b]Although toddler's gender and mother's ethnicity produced significant main effects or interactions with reasoning as individual predictors, these predictors became nonsignificant in the comprehensive model. However, all demographic covariates were included in the final model as control variables.

Table 6

Coefficients for the Composite Model of Main Effects and Interactions with Reasoning

Predictor	Coefficient	*t*-ratio	*p*-value
Constant	1.76	12.82	<.001
Level 1 (turns)			
Mothers' disciplinary reasoning	-.34	-4.09	<.001
Lag-1 toddler's noncompliance intensity	.21	5.82	<.001
Level 2 (episodes)			
Number of turns in the episode	.06	6.32	<.001
Proportion of turns with reasoning	-.28	-3.00	.003
Level 3 (dyads)			
Toddler surgency	-.003	-.10	.92
Mother involvement	-.003	-.10	.92
Time-out as last-resort tactic	.06	1.73	.09
Mean proportion of turns with reasoning	-.03	-.07	.94
Demographic covariates:			
Toddler's age	-.004	-.40	.69
Male gender of toddler	.05	.76	.45
White ethnicity	.14	1.61	.11
SES	-.06	-1.41	.16
Married (vs. other)	.05	.60	.55
Cross-level interactions (Level 1 X Level 3)			
Reasoning x surgency	-.17	-2.01	.045
Reasoning x mother involvement	.22	2.43	.02
Reasoning x time-out as last-resort tactic	.15	1.88	.06

Table 7

Coefficients for the Composite Model Differentiating Between Explaining and Offering Alternatives

Predictor	Coefficient	*t*-ratio	*p*-value
Constant	1.75	13.17	<.001
Level 1 (turns)			
Explaining	-.23	-1.49	.14
Offering alternatives	-.74	-4.84	<.001
Lag-1 toddler's noncompliance intensity	.20	5.80	<.001
Level 2 (episodes)			
Number of turns within the discipline episode	.06	6.54	<.001
Proportion of turns with explaining	-.12	-1.07	.28
Proportion of turns with offering alternatives	-.35	-3.21	.001
Level 3 (dyads)			
Toddler surgency	.00	-.13	.76
Mother involvement	-.01	-.19	.85
Time-out as last-resort tactic	.06	1.86	.07
Demographic covariates:			
Toddler's age	.00	-.59	.56
Male gender of toddler	.06	.89	.38
White ethnicity	.12	1.39	.17
SES	-.06	-1.47	.15
Married (vs. other)	.06	.67	.50
Cross-level interactions			
Explaining x lag-1 toddler's noncompliance intensity	.23	2.06	.04
Explaining x surgency	-.13	-1.29	.20
Explaining x mother involvement	.23	2.33	.02
Explaining x time-out as last-resort tactic	.12	1.26	.21
Offering alternatives x lag-1 toddler's noncompliance intensity	.07	.59	.56
Offering alternatives x surgency	-.14	-1.33	.18
Offering alternatives x mother involvement	.17	1.65	.10
Offering alternatives x time-out as last-resort tactic	.18	1.75	.08

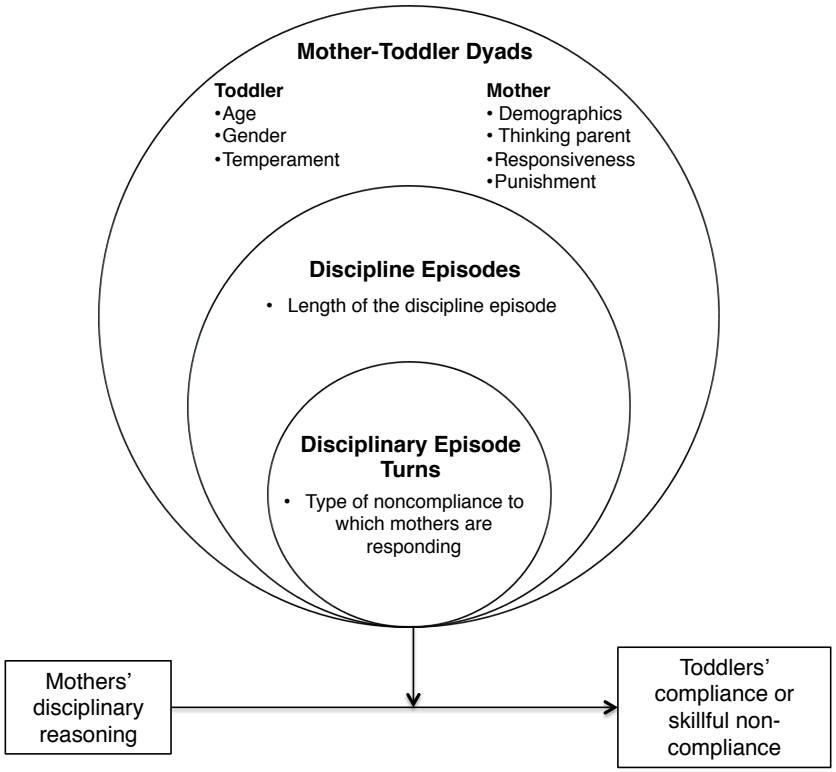
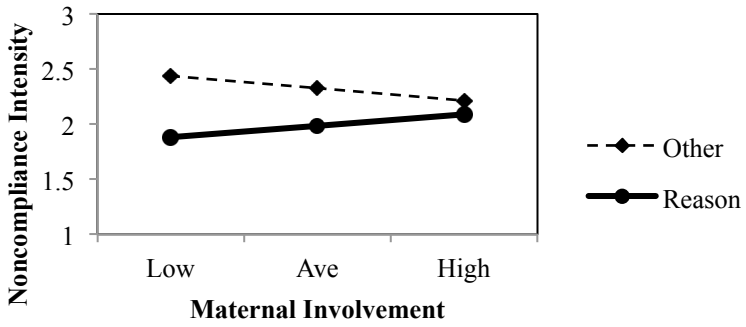
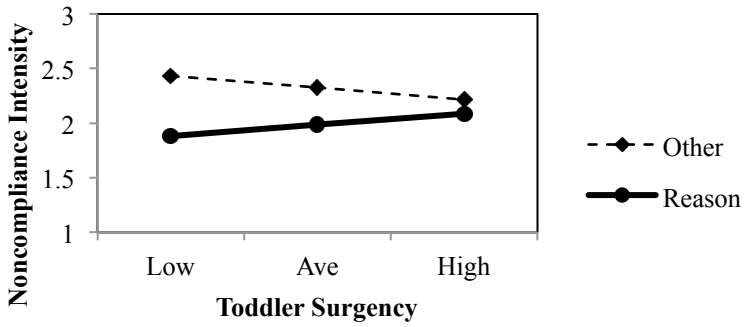


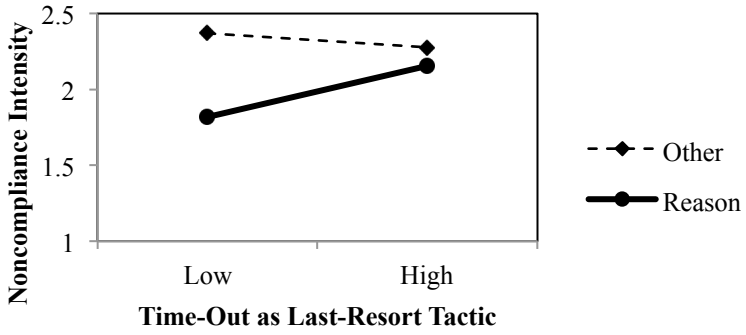
Figure 1. Theoretical model of mothers' disciplinary reasoning, toddler response, and moderators.



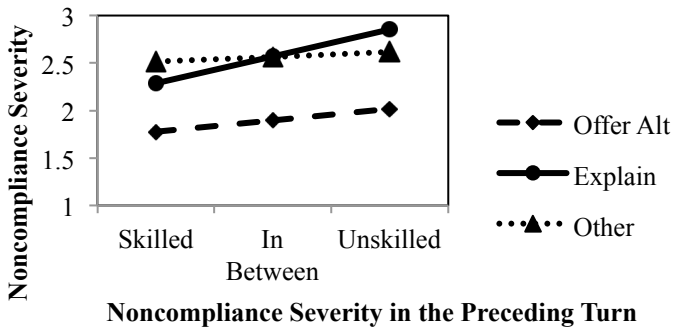
2.1. Disciplinary reasoning x mother involvement on noncompliance intensity



2.3. Disciplinary reasoning x toddlers' surgency on noncompliance intensity



2.2. Disciplinary reasoning x time-out as last-resort tactic on noncompliance intensity



2.4. Explaining x preceding noncompliance on noncompliance intensity

Figure 2. Significant interactions with disciplinary reasoning.

APPENDIX A

INSTITUTIONAL REVIEW BOARD APPROVAL FORM

The Moms and Tots Project was approved on April 16, 2008, and was renewed on September 30, 2009. This specific dissertation was approved on March 13, 2014.

Oklahoma State University Institutional Review Board

Date:	Thursday, March 13, 2014
IRB Application No	HE1414
Proposal Title:	Examining the Effectiveness of Mothers' Use of Disciplinary Reasoning in Response to Toddler Noncompliance
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 3/12/2017

Principal Investigator(s):

Sada Knowles
3913 Jim Robison
Edmond, OK 73013

Robert Larzelere
233 HES
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

X The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval. Protocol modifications requiring approval may include changes to the title, PI advisor, funding status or sponsor, subject population composition or size, recruitment, inclusion/exclusion criteria, research site, research procedures and consent/assent process or forms
2. Submit a request for continuation if the study extends beyond the approval period. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of the research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Dawnett Watkins 219 Cordell North (phone: 405-744-5700, dawnett.watkins@okstate.edu).

Sincerely,

Shelia N. Kennison

Shelia Kennison, Chair
Institutional Review Board

Structured Open-Ended Interview

Interviewer: _____ Date of Interview: _____ Location: Home O&CC Other _____

[Verify that the 3 brief questionnaires were completed. If not, ask the mother to complete them first.]

There are many different opinions about how parents should handle their children's misbehavior. Every family handles these things differently. So we are doing this study to find out what you do every day to prevent and handle your child's misbehavior. We hope you will be as honest as possible. We want a realistic picture of the pressures you face every day. We will be asking you specific details about your discipline practices. Do you have any questions before we begin?

[If multiple children] We want to focus on only one of your children between 18 and 30 months old. I understand that we will focus on *[child's name]*. Is that OK?

1. Compared to other children who are the same age, how often does *[child's name]* misbehave?
   Misbehaves less often About the same Misbehaves more often

2. How do you generally deal with _*his/her*_ misbehavior?

Sometimes parents know when their child is about to misbehave.

3. What do you do to prevent *[child's name]* from misbehaving?

Some parents deal with a problem when the child first begins to misbehave. Others ignore small problems and don't deal with it unless it becomes a bigger problem.

4. What types of misbehavior do you ignore?

Most parents have a discipline tactic they use as a last-resort when nothing else works.

5. What last-resort action do you use when nothing else seems to work?

6. How do you feel when _*his/her*_ misbehavior gets to this point?

From time to time, parents change how they deal with their children's misbehavior.

7. During the last six months, what changes have you made in the way you deal with *[child's name]* misbehavior?

8. Why did you make those changes?

Thank you. This is very helpful for our study.

Next I would like you to complete this form for me. [*Give her Nurturing and Discipline Practices Questionnaire*] It asks about a wide range of actions that parents use to express their love or to deal with misbehavior. After you fill it out, I'll ask you some detailed questions about 2 recent discipline episodes. OK?

Problems For The Day

Next [First], I want to ask about any misbehavior problems you had with *[child's name]* during the past 24 hours.

I'll ask you to rate the difficulty of each misbehavior problem on a 5-point scale [***[if phone]*** which we left with you].

[Hand her or remind her about the Response Options sheet] This shows the 5 options for Misbehavior Difficulty

During the past 24 hours, did __*[child's name/he/she]*__ have any problems with the following activities? [***Repeat question after difficulty rating and after 4 No's in a row.]***

[If Yes] On a scale from 1 to 5, how difficult was it to handle that situation. [1 represents no difficulty and 5 stands for extreme difficulty.]

	Interview 1		Interview 2		Interview 3	
	Yes or No?	Difficulty*	Yes or No?	Difficulty*	Yes or No?	Difficulty*
	If Yes →	*1=None; 5=Extreme*	*If Yes →*	*1=None; 5=Extreme*	*If Yes →*	*1=None; 5=Extreme*
Waking up?			YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Getting dressed?		1 2 3 4 5	YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Eating?		1 2 3 4 5	YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Siblings or peers?		1 2 3 4 5	YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Being overactive?			YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Wanting to do something?			YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Not wanting to do something?			YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Wanting an object?			YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Interrupting?			YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Not picking up?			YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Making a mess?			YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Getting undressed?		1 2 3 4 5	YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Bathing?		1 2 3 4 5	YES NO	1 2 3 4 5	YES NO	1 2 3 4 5
Going to bed?			YES NO	1 2 3 4 5	YES NO	1 2 3 4 5

[If 1+ situations with 2+ difficulty scores, skip to B below. If not ask the next 4 questions]

During the last 24 hours, was your child _____***[fill blank with 4 items below]***:

[If Yes] How difficult was it to handle that situation (those situations), using the same 5-point scale ***[repeat scale if needed]***

Aggressive?	YES	NO	1 2 3 4 5	YES	NO	1 2 3 4 5	YES	NO	1 2 3 4 5
Defiant?	YES	NO	1 2 3 4 5	YES	NO	1 2 3 4 5	YES	NO	1 2 3 4 5
Throwing tantrums?	YES	NO	1 2 3 4 5	YES	NO	1 2 3 4 5	YES	NO	1 2 3 4 5
Negotiating too much?	YES	NO	1 2 3 4 5	YES	NO	1 2 3 4 5	YES	NO	1 2 3 4 5

B. Overall, how difficult was _*[child's name]*_ to deal with the past 24 hours, using the same 5-point scale?

1= not difficult at all				1 2 3 4 5		1 2 3 4 5
3=moderately difficult; 5=extremely difficult						

SCRIPT:

Review the Difficulty Rating provided above. Use only ONE of the following scenarios, then go to the next worksheet.

[IF NO INCIDENTS HAD DIFFICULTY RATING ≥ 2]

You said that you did not have any difficult interactions with [child's name] in the past 24 hours. What is the most recent problem you had to deal with that was difficult? _____ [*at least somewhat difficult]*

[IF ONE INCIDENT RANKED HIGHEST WITH A DIFFICULTY RATING ≥ 2]

You said that __WANTING TO PLAY WITH TV BUTTONS__ was the most problematic interaction with __[child's name]__ in the past 24 hours.

[IF MULTIPLES INCIDENTS WERE TIED FOR THE HIGHEST RANKING WITH DIFFICULTY RATINGS ≥ 2]

You said that more than one incident was difficult to deal with recently, including __[*list the ones tied by labels above*]__. Which incident would you say was the most difficult for you to deal with? _____

Observed Discipline Episode

Next, I want you to describe the exact sequence of events in this episode that happened during our interview session.

As before, I'll ask what you did first, then how _[*child's name*]_ responded, then how you responded, and so forth.

		Incident 1:	Incident 2:	Incident 3:	Incident 4:
DESCRIBING THE EVENT . . .					
Detailed description of the episode: **[Use Modified Ritchie codes]**					
What started the problem?			**[Incidents 2 through 4 are only for observations during interview session]**		
1-mom	What did you do first?				
1-child	How did _*[child's name]*_ respond to that?				
2-mom	How did you respond to that?				
2-child	What did _*[he/she]*_ do next?				
3-mom	What did you do next?				
3-child	What did _*[he/she]*_ do next?				
4-mom	What did you do next?				
4-child	What did _*[he/she]*_ do next?				
5-mom	What did you do next?				
5-child	What did _*[he/she]*_ do next?				
6-mom	What did you do next?				
6-child	What did _*[he/she]*_ do next?				
7-mom	What did you do next?				
7-child	What did _*[he/she]*_ do next?				
8-mom	What did you do next?				
8-child	What did _*[he/she]*_ do next?				
9-mom	What did you do next?				
9-child	What did _*[he/she]*_ do next?				
10+-mom	What did you do next?				
10+-child	What did _*[he/she]*_ do next?				
or compromise)]					
Did you do anything in response to __*[his/her]*____ cooperation immediately afterwards?		**Y**es **N**o			
[If Yes] What did you do?					

INITIAL FEELINGS				
Next I'll ask about your thoughts and feelings at the beginning of this episode.				
How upset were you at the beginning of this episode on a 5-point scale, where 1 is not upset and 5 is extremely upset? **[Response Options B]**	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
IMMEDIATELY AFTERWARDS				
[If not already answered] Did the episode end with _*[child's name]*_ **O**beying you, **G**etting _[*his/her*]_ way, or did you **C**ompromise? **[Response Options C]**	**O**beying **G**etting Way **C**ompromise	**O**beying **G**etting Way **C**ompromise	**O**beying **G**etting Way **C**ompromise	**O**beying **G**etting Way **C**ompromise
Did you get more upset during the episode *[than at the beginning of it]*? **[If No, Go to next section on Change in Tactics]**	**Y**es **N**o	**Y**es **N**o	**Y**es **N**o	**Y**es **N**o
[IF YES] Exactly when did you get the most upset?	[SPECIFY UNIQUE BEHAVIOR OR TURN, e.g., 3-C]	[SPECIFY UNIQUE BEHAVIOR OR TURN, e.g., 3-C]	[SPECIFY UNIQUE BEHAVIOR OR TURN, e.g., 3-C]	[SPECIFY UNIQUE BEHAVIOR OR TURN, e.g., 3-C]
How upset were you then, with 1 being not upset and 5 being extremely upset? **[Response Options B]**	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5

SCRIPT: [Do we need to call a 2nd time to get one or both of the targetted types of discipline episodes?]
[If we need a 2nd call] We would like to call you again in a day or so to ask about one or two discipline episodes.
What would be the best time to call? **Best Time: _____ 2nd Best:_____**
[Go to C below]
[If not] This is the last time we will be calling you for the Moms and Tots Study.
In about one month we will mail you two short questionnaires about _*[child's name]*_ ..
Please complete these questionnaires and mail it back to us in our envelope as soon as you can.
After we receive those questionnaires, we will get you the other $30 for participating in our study.
C. Thank you very much for helping us in our study.

Nurturing and Discipline Practices Questionnaire

How often have you done each of the following **in the past 2 days** (48 hours)?
Please circle the most accurate number.

	Number of Times Done **in the Past 2 Days:**						
Held your child	0	1	2	3-5	6-10	11-20	21+
Kissed your child	0	1	2	3-5	6-10	11-20	21+
Hugged your child	0	1	2	3-5	6-10	11-20	21+
Said "I love you" to your child	0	1	2	3-5	6-10	11-20	21+
Encouraged your child to talk to you	0	1	2	3-5	6-10	11-20	21+
Helped your child develop a new skill	0	1	2	3-5	6-10	11-20	21+
Played with your child	0	1	2	3-5	6-10	11-20	21+
Encouraged your child to try something new	0	1	2	3-5	6-10	11-20	21+
Gave your full attention to your child for 2 minutes or more	0	1	2	3-5	6-10	11-20	21+
Gave your child a choice between two or more possibilities	0	1	2	3-5	6-10	11-20	21+
Allowed your child to interrupt something you were doing	0	1	2	3-5	6-10	11-20	21+

NOTE: Next 2 pages change the time period from the past 2 days to the PAST WEEK (7 days)

robert.larzelere@okstate.edu

How often have you done each of the following **in the past week** (7 days)?

Responses to Misbehavior

	Number of Times Done **in Past Week:**						
Asked child why she/he is acting that way	0	1	2	3-5	6-10	11-20	21+
Restated a rule *(You know you need to share your toys)*	0	1	2	3-5	6-10	11-20	21+
Described a natural consequence *(If you do not share, other children will not want to play with you)*	0	1	2	3-5	6-10	11-20	21+
Explained why they should not behave like that	0	1	2	3-5	6-10	11-20	21+
Suggested a compromise	0	1	2	3-5	6-10	11-20	21+
Scolded or disapproved firmly *(Using a "command tone" including loud tone of voice)*	0	1	2	3-5	6-10	11-20	21+
Shamed *(Name calling, you should know better than that, don't you know how much that upsets me)*	0	1	2	3-5	6-10	11-20	21+
Warned *(Counting, threatening, other statements used to warn)*	0	1	2	3-5	6-10	11-20	21+
Bribed or offered a reward for good behavior	0	1	2	3-5	6-10	11-20	21+
Yelled	0	1	2	3-5	6-10	11-20	21+
Suggested a reason for misbehavior *(tired due to no nap that day, hungry)*	0	1	2	3-5	6-10	11-20	21+
Purposely ignored child	0	1	2	3-5	6-10	11-20	21+
Distracted or redirected child	0	1	2	3-5	6-10	11-20	21+

How often have you done each of the following **in the past week** (7 days)?

Responses to Misbehavior

	Number of Times Used **in Past Week:**						
Forced compliance *(taking child to where you want her/him to go, making child eat)*	0	1	2	3-5	6-10	11-20	21+
Held to soothe or comfort child	0	1	2	3-5	6-10	11-20	21+
Restrained child	0	1	2	3-5	6-10	11-20	21+
Modeled or demonstrated appropriate behavior	0	1	2	3-5	6-10	11-20	21+
Put child in time out or isolation	0	1	2	3-5	6-10	11-20	21+
Took away a privilege *(not allowed to watch television, taking away a toy)*	0	1	2	3-5	6-10	11-20	21+
Involved another person in the situation *(other parent or family member mentioned or physically present)*	0	1	2	3-5	6-10	11-20	21+
Slapped child on the hand	0	1	2	3-5	6-10	11-20	21+
Spanked child	0	1	2	3-5	6-10	11-20	21+
Other disciplinary action not listed	0	1	2	3-5	6-10	11-20	21+

Please specify: _____

VITA

Sada J. Knowles

Candidate for the Degree of

Doctor of Philosophy

Thesis: THE EFFECTIVENESS OF MOTHERS' DISCIPLINARY REASONING IN RESPONSE TO TODDLER NONCOMPLIANCE

Major Field: Human Sciences

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy in human sciences at Oklahoma State University, Stillwater, Oklahoma in December, 2014.

Completed the requirements for the Master of Science in human development and family science at Oklahoma State University, Stillwater, Oklahoma in 2004.

Completed the requirements for the Bachelor of Science in family studies at Oklahoma Christian University, Edmond, Oklahoma in 2002.

Experience: Certified Family Life Educator, Principal at Oklahoma Christian Academy from 2014 to Present, Instructor at Oklahoma Christian University from 2011 to 2014, Adjunct Instructor at Oklahoma Christian University from 2005 to 2010, Freshman Counselor at Oklahoma Christian University from 2002 to 2004

Professional Memberships: American Psychological Association, National Council on Family Relations, Oklahoma Psychological Society, Society for Research in Child Development